Colorado River Storage Project
Flaming Gorge Working Group
Meeting Minutes
August 26, 2010

Participation

This meeting was held at Western Park, Vernal, Utah. Attendees are listed below.

Purpose of Meeting

The purpose of operation meetings (held in April and August) is to inform the public and other interested parties of Reclamation's current and future operational plans and to gather information from the public regarding specific resources associated with Flaming Gorge Reservoir. In addition, the meetings are used to coordinate activities and exchange information among agencies, water users, and other interested parties concerning the Green River.

General

Heather Patno welcomed everyone to the fall meeting. Heather indicated that Bill Reed with the Colorado Basin River Forecast Center (CBRFC) would present the forecast estimated this year. Following the CBRFC presentation Heather will review dam operations and the flow targets achieved this year. Before starting, all present introduced themselves and their affiliations.

Upper Green and Yampa River 2010 Forecast Review

Bill Reed of the Colorado Basin River Forecast Center (CBRFC) presented a review of the 2010 water supply forecast for Flaming Gorge Reservoir. Bill has been the forecaster for the Green River Basin for several years now. Bill's presentation covered how basin conditions changed throughout the season and how this affected his forecast.

Snow accumulation was significantly below average this year with a seasonal peak of 62% of average. Cooler than average temperatures from the end of April through mid-May, contributed to a delayed snowmelt this year. By June 25th, all measured snow (below 10,000 feet) was gone. Unexpected above average precipitation occurred in April, May and June, improving overall basin conditions and raising the forecast.

Bill described the evolution of the April to July (A-J) runoff season from its first issuance in January through the last issuance in July. Forecasts in January were approximately 9% above the final observed A-J inflow volume. In April the forecasts were approximately 36% below the final observed A-J inflow volume—at that time seasonal basin conditions were dry. Forecasts rose during the runoff period as above average precipitation was received in April, May, and June. The local (flow not from Fontenelle) contributed approximately 30% of the total inflow. Even though there were high daily runoffs from the Uintah Mountains, overall it was still a dry year. The final observed April-July runoff volume into Flaming Gorge Reservoir was 706 kaf (59% of average).

Bill also presented an overview of the peak flow forecast for the Yampa River at Deerlodge Park. Three peaks above 13,000 cfs occurred in the late May – early June time period. The

second peak was the primary snowmelt peak forecasted. The first and third peaks were influenced by rain. The Yampa flows combined with the release from Flaming Gorge to produce two peaks above 17,000 cfs at Green River near Jensen.

Flaming Gorge Hydrology and Operations Presentation

Flaming Gorge is operated under a 2006 Record of Decision (ROD) that implements the Upper Colorado River Endangered Fish Recovery Program 2000, Muth et al, Flow and Temperature Recommendations for Endangered Fishes in the Green River Downstream of Flaming Gorge Dam (flow recommendations). The flow recommendations divide the Green River below Flaming Gorge Dam into three reaches. Reach 1 begins directly below the dam and extends to the confluence of the Green and Yampa Rivers. Reach 2 begins at the confluence of the Green and Yampa Rivers and extends to the confluence of the Green and White Rivers. Reach 3 begins at the end of Reach 2 and extends to the confluence of the Green and Colorado Rivers. The flow recommendations use five different categories to classify the type of water year and release patterns associated with that hydrology.

Flaming Gorge releases under the flow recommendations are increased to coincide with the immediate peak and post-peak of the Yampa River spring peak flows. Releases are targeted and measured in Reach 2 at the Green River at Jensen, Utah USGS streamgage (Jensen streamgage). The Yampa River generally follows a pattern with two spring peaks, the second peak higher than the first. Flaming Gorge Dam was scheduled to release ten days of powerplant capacity releases before ramping down to base flows. Releases were increased at the end of May in anticipation of meeting the second Yampa River peak flow with powerplant capacity releases. Unfortunately, three peaks occurred on the Yampa River and Flaming Gorge was downramping at a rate of 350 cubic feet per second per day (cfs/day) during the observed Yampa River peak flow. Flows measured at the Jensen streamgage reached four days of 18,600 cubic feet per second (cfs) and 18 days greater than 15,000 cfs.

The hydrologic classification under the ROD based on the May forecast of April-July unregulated inflow volume into Flaming Gorge Reservoir was moderately dry. Observed unregulated inflow volume during the April-July runoff period was 706 thousand acre-feet (kaf). The projected annual unregulated inflow volume in water year 2010 is 60 percent of average. The highest contribution of inflows came during a large June runoff event.
The Flaming Gorge Dam daily average release during the base flow season is determined with the forecasted unregulated inflow volume into Flaming Gorge Dam over the winter and subsequent spring period. Release volumes are based on forecasted inflow and reaching reservoir elevation of 6027 feet by May 1 of the next year.

Releases during the base flow period are evaluated to produce less than a 0.1 meter stage change at the Green River at Jensen streamgage. Yampa River flows effect the range of hourly release fluctuations from Flaming Gorge Dam. When Yampa River flows are higher, hourly release fluctuations have less impact to stage change at Jensen. As Yampa River flow decreases, the same hourly release fluctuations have a greater impact to stage change as measured at the Jensen streamgage.

The current condition of Flaming Gorge reservoir is 86% of live storage capacity. The current elevation is 6029.79 feet. The average inflow has been 950 cfs, and the average release has been 1,800 cfs. Flaming Gorge Reservoir is decreasing and scheduled to meet the May 1 elevation target of 6027 feet next year. The August projections of unregulated inflows under the minimum probable (10th percentile), most probable (50th percentile) and maximum probable (90th percentile) forecast are used to determine the range of base flow releases. Base flow releases during the summer period through November 30 will range between 800 cfs/day and 1,960 cfs/day. The winter period from December 1 through February 28, 2011 will range between 800 cfs/day and 1,750 cfs/day. Western Area Power Administration schedules hourly fluctuations for hydropower within the ranges prescribed for the daily base flow rate.

Following Heathers presentation Peter Crookston gave a presentation on temperature targets achieved this year described in the 2006 ROD.

In 1978 selective withdraw structure (SWS) gates were installed on Flaming Gorge dam. Prior to construction of the selective withdrawal structure, water releases were made through the penstocks at the bottom of the reservoir. This mode of operation resulted in summertime water release temperatures ranging from 41-48 degrees Fahrenheit (5-9 degrees Celsius) which limited trout growth rates and the desired cold water sport fishery development. The Flaming Gorge 2006 ROD sets summer temperature objectives of 64 degrees Fahrenheit (18 degrees Celsius) for 2 to 3 weeks to help endangered fish that are accustomed to warmer water temperatures.

On April 15th the selective withdraw structure gates were elevated to 60 feet below the reservoir surface. On May 15th the gates were moves to 50 feet below the surface and June 15th they were moved to 40 feet below the surface. The gates cannot be any closer to the reservoir surface than 40 feet due to potential intake of debris into the turbines and public safety hazards. This protocol for monthly incremental adjustments will be described in Reclamation SWS operational plan which is in revision at this time.

Peter said release temperatures achieved this year have exceeded or equaled the 2006 ROD target for Lodore Canyon at 64 degrees Fahrenheit (18 degrees Celsius) for 37 days since June 15th which fulfills ESA compliance. A second target in the 2006 ROD is the requirement for temperatures at the confluence of the Yampa and the Green River. Temperatures at the confluence are currently unavailable at this time but will be provided this fall.

Heather continued with a slide describing the process of making a request to the FGTWG for dam operations. Reclamation takes comments and comes up with a decision in mid May for spring and summer operations.

General Discussion and Next Meeting

Trina Hedrick with UDWR said a lot happens with the hydrology between April when the request is required and the spring release. With so much change in the forecast why does the request need to be submitted so early? Heather responded that it is much easier to make a decision with all the requests in hand at the same time. Reclamation is balancing sometimes

very opposing requests and when one comes in late it is hard to try and accommodate or balance it with the others.

Steve Pierson (Pierson Farms) asked if Reclamation has last year's data and Heather said yes it is on the internet. Steve said last year's releases were way out of line with Flaming Gorge Reservoir inflows.

Heather introduced Kevin McAbee with the FWS to discuss the biological objectives of the recovery program and results of their work

Kevin began by describing the dual nature of the flow requests: The Recovery Program requested a peak flow to support ongoing research projects & the USFWS requested a peak and base flow to support endangered fishes.

The Recovery Program requested 15,000 cfs for a minimum of 5 days or as many as possible if 5 could not be met (The USFWS requested that these conditions be met as well). Green River conditions met this request, with 18 days greater than 15,000 cfs. This request supports the Stirrup floodplain research project. 15,000 cfs provides connection between the Green River and the Stirrup wetland, allowing razorback sucker and other fish to move between the 2 sites (main channel and floodplain habitats). UDWR monitors fish movement through this site with a passive PIT-tag array, providing valuable information on fish habitat use, movement, and survivorship. This is the last year of a three year study. The past three years have provided quality recapture data for endangered species. UDWR will be publishing a final summary of this research in the next year.

The USFWS also included base flow requests in its letter. This request was to set the Reach 1 target based on the ROD and then augment by as much as 40% to create higher flows. To assure higher flows, USFWS also agreed to reduce the duration of the peak. Higher flows during the base period were important to USFWS for 2 reasons: to provide quality backwater habitat for young-of-year (YOY) Colorado pikeminnow and to disadvantage smallmouth bass reproduction. 2010 were critical years for both of these topics for different reasons.
2010 was a very important year for YOY Colorado pikeminnow habitat creation because Recovery Program monitoring efforts observed by far the largest YOY Colorado pikeminnow numbers in 2009. Therefore, USFWS wanted to build on this success by attempting to re-create the 2009 conditions and hopefully see another banner year in YOY Colorado pikeminnow abundance.

2010 was also a very important year to disadvantage smallmouth bass. This year a large cohort of smallmouth bass that were spawned in 2007 were reaching reproductive maturity. To prevent this large cohort from producing even more bass, the Recovery Program increased its efforts for mechanical removal in many reaches. USFWS wanted flow releases from Flaming Gorge to also assist in the effort. Higher flows from Flaming Gorge reduce water temperature in the Green River and delay the smallmouth bass reproduction. This delay allows native fish to grow large enough to avoid predation by smallmouth bass and causes young bass to have lower overwinter survival.

Kevin McAbee mentioned that a burbot was found in the Green River 7/28/2010. UDWR has a no tolerance policy for burbot in the Green River. Trina said that now when burbot are found in the Green River they must be euthanized. This has been the policy in the reservoir for sometime and now it is the policy in the river.

Steve asked if this will be the last year you flood me out. Trina responded that 15,000 cfs in reach 2 should not flood anyone out. Heather added that the target of 18,600 cfs is the target for an average hydrological year and these targets should not induce flooding. Steve said I'm not the only one being flooded out.

Steve asked who funds these research flow studies. Trina said that multiple agencies are funding the studies. Hank Gutz (Daggett County Commissioner) asked Steve if his farm was below the Yampa and Green River confluence and Steve said yes.

Clayton Palmer with (Western) said he wants to correct the misconception that high flows are better for young-of- the-year pikeminnow. Argonne National Laboratory's work shows that in some years high flows help but that is not always the case. Some high flows hurt young-of-the-year pikeminnow. From 800 cfs to 1600 cfs you see a big increase in habitat. For example, back water # 7 wetland is largest at 1600 cfs. Secondly, Clayton talked about cold water temperatures and disadvantaging smallmouth bass. He said Reclamation is obligated to release the warmest water temperatures possible according to the 2006 ROD. And now, in an effort to disadvantage the warm water smallmouth bass, Reclamation releases the warmest water temperature available for endangered fish and then adds high flow releases on top of it to bring water temperatures down to disadvantaged smallmouth bass.

Kevin McAbee said the Recovery program wants to look at multiple years and see what the effects are. The complex nature of the river system makes it difficult to come to specific conclusions in single years or year by year. The Recovery Program is trying to look at the big picture.

Heather then introduced the operational requests from Western and UDWR. Lyle Johnson described the double peak request. The double peak saves money for customers. Clayton displayed a chart and described how water is saved with the double peak scenario.
Trina described the UDWR request to reflect a natural hydrograph without double peaks. Trina said double peak releases are unnatural and disadvantage fish. Fish are stressed from double peaks and they go into the winter in sub-optimal condition as a result of double peaks. Clayton asked why UDWR is making this request when they know Western is in the middle of a five year study of double peaks. Trina said their objective is to manage the fish and serve their customers. This is what we want to see happen with operations. Clayton said why doesn't UDWR get together with Western scientists and come up with a request together that represents both of our needs. Clayton said your data does not show an impact to the trout fishery from double peaking. Your electrofishing data comes from 1985 so why not use the data you already have generated rather than doing a whole new study. Ryan Mosley with UDWR said we don't have data to support severe impacts to trout by double peaking but the data clearly shows real impacts to the invertebrate populating that these trout feed on. There could be a time lag effect

that is difficult to see. Ryan said our proposal is what we would like to see for Flaming Gorge operations.

Hank said we have residents in Daggett County that are hurt economically above and below the dam because of dam operations. Dam operations can hurt our economy by impacting camping and fishing and other recreation activities.

Kevin Clegg with Green River Outfitters and Guides Association (GROGA) added that they support the operation request submitted by UDWR. Casey Snider with Trout unlimited said they also support UDWR's request.

The tentative date for the next Flaming Gorge Working Group meeting will be April 26th, 2011, at 7:00 p.m. here at Western Park in Vernal.

Presentations

Colorado Basin River Forecast Center Presentation August 2010
http://www.usbr.gov/uc/water/crsp/wg/fg/pdfs/CBRFC_Aug2010.pdf
Reclamation Hydrology Presentation August 2010
http://www.usbr.gov/uc/water/crsp/wg/fg/pdfs/FlamingGorgeWorkGroup_Aug10.pdf

Attendees:

Name	Organization
Doug Burton	GROGA
Kevin Clegg	GROGA
Peter Crookston	Reclamation
Hank Gutz	Daggett County Commissioner
Alan Haslem	Moon Lake Electric
Trina Hedrick	UDWR
Lyle Johnson	Western
Yankton Johnson	Moon Lake Electric
Dave Klein	Reclamation
Kevin McAbee	FWS
Matt McKell	UDWR
Ryan Mosley	UDWR
Clayton Palmer	Western
Heather Patno	Reclamation
Steve Pierson	Pierson Farms
Bill Reed	CBRFC
Casey Snider	Trout Unlimited

Previous Meeting Minutes

Flaming Gorge Working Group Meeting Minutes:

- April 27, 2010
- August 26, 2009
- April 15, 2009
- August 20, 2008
- April 16, 2008
- August 23, 2007
- April 19, 2007
- August 22, 2006
- April 13, 2006
- November 2, 2005
- October 28, 2005
- August 25, 2005
- April 20, 2005
- August 19, 2004
- April 15, 2004